Exhibit 1

Serological Research Institute
3053 Research Drive, Richmond, CA 94806
510-223-SERI (7374)

March 30, 2022

Amy Harwell, Assistant Capital Habeas Unit Chief
Federal Public Defender's Office
Middle District of Tennessee
810 Broadway, Suite 200
Nashville, TN 37203

SERI M'5337'01
Agency Case No. 89-F-1773
Victims: Judy Smith
Chad Burnett
Jason Burnett
Suspect: Oscar Smith

Evidence Examination Report 2

Results Summary

1. Left Sleeve of White Sweater/Shirt (Item 15-1): Oscar Smith and Judy Smith could be included as contributors to the DNA results obtained from this item.

2. Right Sleeve of White Sweater/Shirt (Item 15-2): Judy Smith could be included as a contributor to the DNA results obtained from this item. Oscar Smith is excluded as a contributor to the DNA results from this item.

3. Shoulders of White Sweater/Shirt (Item 15-3): A major contributor (Unknown Contributor) is present in the DNA results from this item. Oscar Smith, Chad Burnette, Jason Burnette, and Judy Smith are excluded as the major contributor to the DNA results obtained from this item.

4. Front of Teal Tank Top (Item 16-1): Oscar Smith is excluded as a contributor to the DNA results from this item.

5. Left Sleeve of Teal Tank Top (Item 16-2): Chad Burnette could be included as a contributor to the DNA results obtained from this item. Oscar Smith, Jason Burnette, and Judy Smith are excluded as contributors to the DNA results obtained from this item.

6. Right Sleeve of Teal Tank Top (Item 16-3): DNA recovered from this item is too weak to interpret.

7. Awl Handle (Item 17-1): Chad Burnett could be included as a contributor to the DNA results obtained from this item. Oscar Smith, Jason Burnette, and Judy Smith are excluded as contributors to the DNA results obtained from this item.

Evidence Submission

Two items were submitted on January 25, 2022 by Alysandra Finn of the Federal Public Defender's Office in Nashville, Tennessee via Federal Express (2890 9200 8116). One item was submitted on January 26, 2022 by Alysandra Finn via Federal Express (2891 2932 0068). Four items were resubmitted on March 3, 2022 by the Federal Public Defender's Office in Nashville, Tennessee via Federal Express (2704 2436 3805). One item was resubmitted on March 4, 2022 by the Federal Public Defender's Office in Nashville, Tennessee via Federal Express (2704 1562 5473).

Requested Analysis

DNA analysis

Examination

Item 5: Head Hair from Chad Burnette: Many brown hairs.
- The root ends of nine hairs were sampled (Item 5-2).

Item 11: Blood from Oscar Smith: A swatch of cloth with three red/brown stains, one previously sampled.
- Portions of one of the previously sampled stains and one of the un-sampled stains were sampled and combined (Item 11-1).

Item 12: Blood from Chad Burnette: A swatch of cloth with three stains, two previously sampled.
- A portion of the one of the previously sampled stains was sampled (Item 12-1).
- Portions of each of the previously sampled stains were re-sampled and combined (Item 12-2).

Item 13: Blood from Jason Burnette: A swatch of cloth with three red/brown stains, two previously sampled.
- Portions of one of the previously sampled stains and one of the un-sampled stains were sampled and combined (Item 13-1).

Item 14: Blood from Judy Smith: A swatch of cloth with two previously sampled red/brown stains.
- A portion of the one of the previously sampled stains was sampled (Item 14-1).

Item 15: White Sweater/Shirt: An off-white long sleeve shirt with large red/brown stains.
- An unstained area on the left sleeve wrist/forearm was swabbed (Item 15-1).
- An unstained area on the right sleeve wrist/forearm was swabbed (Item 15-2).
- Unstained areas on both shoulders were swabbed (Item 15-3).

Item 16: Teal Tank Top: A blue/green tank top with brown stains and a "Summer Sailing" logo on the right chest area.

- An unstained area on the front stomach was swabbed (Item 16-1).
- An unstained area on the left shoulder strap was swabbed (Item 16-2).
- An unstained area on the right shoulder strap was swabbed (Item 16-3).

Item 17: Awl: A gray stained wooden handled awl with a metal shaft.

- The wooden handle was swabbed (Item 17-1).

Results and Conclusions

Note: The statistical calculations conducted by this laboratory assume that contributors to DNA mixtures are genetically unrelated. Due to the biological relationship of Chad Burnette and Jason Burnette to Judy Smith, mixture calculations for Chad Burnette and Jason Burnette are not reported.

1. Left Sleeve of the White Sweater/Shirt (Item 15-1):
   a. A weak and incomplete DNA mixture was obtained.
   b. The DNA mixture was interpreted as originating from three contributors with at least one male contributor and at least one female contributor, but no major discernable major contributor.
   c. The DNA results are at least 5 times more likely if they originated from Oscar Smith (Item 11-1) and two unknown, unrelated contributors than if they originated from three unknown, unrelated contributors. This likelihood ratio provides limited support for the inclusion of Oscar Smith to this mixture.
   d. The DNA results are at least 5.8 trillion times more likely if they originated from Judy Smith (Item 14-1) and two unknown, unrelated contributors than if they originated from three unknown, unrelated contributors. This likelihood ratio provides very strong support for the inclusion of Judy Smith to this mixture.

2. Right Sleeve of the White Sweater/Shirt (Item 15-2):
   a. A weak and incomplete DNA mixture was obtained.
   b. The DNA mixture was interpreted as originating from two contributors with at least one male contributor and at least one female contributor, but no major discernable major contributor.
   c. Oscar Smith is excluded as a contributor to the DNA mixture from this item.
   d. The DNA results are at least 61 quadrillion times more likely if they originated from Judy Smith and one unknown, unrelated contributor than if they originated from two unknown, unrelated contributors. This likelihood ratio provides very strong support for the inclusion of Judy Smith to this mixture.

3. Shoulders of the White Sweater/Shirt (Item 15-3):
    a. A DNA mixture was obtained.
    b. The DNA mixture was interpreted as originating from two contributors with a major contributor (Unknown Contributor) and at least one male contributor.
    c. The Unknown Contributor appears to be genetically related to Oscar Smith and Judy Smith. Using Caucasian allele frequencies, a parentage calculation shows that the profile of the Unknown Contributor is at least 15 quadrillion times more likely if it originated from a biological offspring of Oscar Smith and Judy Smith than if it originated from an unrelated Caucasian individual. In other words the probability of parentage is greater than 99.9999%
    d. Oscar Smith, Judy Smith, Chad Burnette, and Jason Burnette are excluded as the major contributor.

4. Front of the Teal Tank Top (Item 16-1):
    a. A weak and incomplete male DNA profile was obtained from this item.
    b. Oscar Smith is excluded as a contributor to the DNA results from this item.
    c. The detected alleles for this item are consistent with both Chad Burnette and Jason Burnette.
    d. Judy Smith is excluded as a contributor to the DNA results obtained from this item.

5. Left Sleeve Strap of the Teal Tank Top (Item 16-2):
    a. A single source, male DNA profile was obtained from this item.
    b. Chad Burnette could be included as a contributor to this profile. The chance that a randomly selected, unrelated person would have the same profile is approximately 1 in 141 quintillion.
    c. Oscar Smith, Jason Burnette, and Judy Smith are all excluded as contributors to the DNA results obtained from this item.

6. Right Sleeve Strap of the Teal Tank Top (Item 16-3):
    a. The results obtained from this item are unsuitable for interpretation.

7. Awl Handle (Item 17-1):
    a. A DNA mixture was obtained.
    b. The DNA mixture was interpreted as originating from two contributors with a major male contributor. Chad Burnette could be the major contributor to this mixture. The chance that a randomly selected, unrelated person would have the same profile as the major contributor is approximately 1 in 4 octillion.
    c. Oscar Smith, Jason Burnette, and Judy Smith are all excluded as contributors to the DNA results obtained from this item.
    d. The minor portion of the mixture is suitable for comparison.

Recommendation

The results from the following items are suitable for comparison should a person of interest arise:

Awl Handle (Item 17-1)

Globalfiler™ Results

Item No.	5-2	11-1	12-2	13-1	14-1
Description	**Hair – Chad Burnette**	**Blood – Oscar Smith**	**Blood – Chad Burnette**	**Blood – Jason Burnette**	**Blood - Judith Smith**
D3S1358	15,16	17,18	15,16	15,16	15,18
vWA	15,19	15,16	15,19	16,19	16,19
D16S539	9,11	12	9,11	11	9,11
CSF1PO	[10,11]	10,12	10,11	10,11	10
TPOX	NR	8,11	8	8,11	8,11
Y-indel	2	2	2	2	NR
AMEL	X,Y	X,Y	X,Y	X,Y	X,X
D8S1179	10,13	13	10,13	10,13	13,14
D21S11	29,30	28,30	29,30	29,30	29,31.2
D18S51	15,16	15,16	15,16	15,16	16
DYS391	NR	11	10	10	NR
D2S441	10,11.3	10,11.3	10,11.3	10,11.3	11,11.3
D19S433	13,16	13,16	13,16	12,13	12,13
TH01	9.3	8,9.3	9.3	9.3	9.3
FGA	19,20	19,25	19,20	19,20	20,25
D22S1045	14,15	14,15	14,15	14,16	14,16
D5S818	10,12	12,13	10,12	10,12	11,12
D13S317	9,12	8,10	9,12	9,11	11,12
D7S820	12[10]	9,11	10,12	10,11	11,12
SE33	18,26.2	20,30.2	18,26.2	18,26.2	17,26.2
D10S1248	13,15	13	13,15	13,15	13,15
D1S1656	15.3,17.3	16.3,17	15.3,17.3	13,15.3	15,15.3
D12S391	18,20	18,23	18,20	18,23	20,23
D2S1338	NR	19,20	19,20	19,25	19,25

KEY:

X,X	Female DNA.
X,Y	Male DNA.
NR	No Results.
[ ]	Below Stochastic.

All control samples typed as expected.

Globalfiler™ Results

Item No.	15-1	15-2	15-3	16-1	16-2	16-3	17-1
Description	**White Shirt Left Sleeve**	**White Shirt Right Sleeve**	**White Shirt Shoulders**	**Teal Tank Top Front**	**Teal Tank Top Left Strap**	**Teal Tank Top Right Strap**	**Awl Handle**
D3S1358	15,18[17]	15>18[16,17]	15,18[16]	NR	15,16	NR	15,16[18]
vWA	[15,16,17,19]	16,19[15,17]	15[19]	NR	19[15]	NR	15,19[17]
D16S539	[9]	[9,11,12,13]	[11,12]	NR	[9]	NR	9,11
CSF1PO	NR	[10]	[10]	NR	NR	NR	10,11
TPOX	NR	NR	NR	NR	NR	NR	8
Y-indel	[2]	2	2	2	2	NR	2
AMEL	X[Y]	X(Y)	X(Y)	NR	X,Y	NR	X,Y
D8S1179	13,14[12]	13,14[10,12]	13,14	NR	10,13	NR	10,13[11,14]
D21S11	[29]	[28,29,30,31.2]	[29,30,31.2]	[29]	[29,30]	NR	29,30
D18S51	[16]	[14]	[16]	NR	NR	NR	15,16
DYS391	NR	NR	NR	NR	NR	NR	10
D2S441	11,11.3(10)[14]	11,11.3(10)	10,11.3(11)	[10,11.3]	10,11.3	NR	10,11.3(11)
D19S433	12,13[14,16]	12,13(14)[16]	13,14(12)[16]	[13]	13,16	NR	13,16(14,15.2)
TH01	9.3	9.3[7,9]	8,9.3	NR	[9.3]	NR	9.3
FGA	20[19,25]	20,25[19,21]	19,20[25]	NR	19[20]	NR	19,20[22]
D22S1045	14,16[15]	14,16(15)	14,16	NR	14,15	[15]	14,15[16,17]
D5S818	12[11]	11,12	11>13[10,12]	[10]	10,12	NR	10,12[11]
D13S317	[11,12]	11[12]	11[10,12]	NR	[9,12]	NR	9,12
D7S820	[11]	[10,11,12]	[11,12]	NR	NR	NR	10,12
SE33	NR	[26.2]	[17,20]	NR	[18,26.2]	NR	18,26.2
D10S1248	13>15	13,15[14]	13,15	[15]	13,15	NR	13,15
D1S1656	[15.3]	15[13,15.3,17.3]	16.3[15.3]	NR	[15.3,17.3]	NR	15.3,17.3
D12S391	[23]	[23]	[20,23]	NR	NR	NR	18,20
D2S1338	NR	[18,19,25]	NR	NR	[19]	NR	19,20

KEY:

X,X	Female DNA.
X,Y	Male DNA.
NR	No Results.
<&>	Below 60% Primary.
( )	Below 40% Primary.
[ ]	Below Stochastic.

All control samples typed as expected.

Laboratory Activity Dates

Start Date: 2/16/2022
End Date: 3/29/2022

Evidence Disposition

The evidence will be returned. SERI will retain any remaining DNA extracts.

DocuSigned by:
PH
90D3D73465AB477...
3/30/2022

Technical Reviewer

DocuSigned by:
Gary C. Harmor
860F625BC1C5401...

Gary C. Harmor
Chief Forensic DNA Analyst

TECHNICAL NOTES

1. Short Tandem Repeat (STR) DNA can be amplified using the Polymerase Chain Reaction (PCR) method. The Applied Biosystems™ Globalfiler™ PCR amplification kit detects twenty-one STR genetic markers, two gender markers (Amelogenin and Y-indel), and one Y-chromosome STR genetic marker (DYS391). Amelogenin, Y-indel and DYS391 are not included in any statistical calculations. The Federal Bureau of Investigation required that Forensic DNA testing laboratories start using the required 20 core loci by January 1, 2017. SERI chose and adopted the Globalfiler™ PCR Amplification Kit to comply.

2. Random Match Probability (RMP) is a population frequency statistic that is based on the allele frequencies from a population database. This lab uses the published population database from Applied Biosystems Globalfiler™ PCR Amplification Kit User Guide.

3. Probabilistic genotyping (PG) refers to the use of biological modeling, statistical theory, computer algorithms, and probability distributions to calculate likelihood ratios (LRs) and/or infer genotypes for the DNA typing results in accordance with the FBI's Quality Assurance Standards for Forensic DNA Testing Laboratories. PG is a tool to assist in the interpretation of forensic DNA typing results. LR is the ratio of two probabilities of the same event under different and mutually exclusive hypothesis; typically the numerator contains the prosecution's hypothesis (e.g. the mixture is a combination of the victim's and suspect's DNA profiles) and the denominator contains the defense's hypothesis (e.g. the mixture is a combination of the victim and an unknown individual). The results are expressed as a number that infers which hypothesis is more likely. While the calculations utilize forensic DNA population database frequencies, a calculated LR is not frequency data, but an estimation of the probability of one hypothesis over the other. SERI started using a semi-continuous PG software program (eDNA Bullet) in 2018. In 2022 SERI began using a fully continuous PG software program (Bullet Proof Sentry).

4. Likelihood ratios assess the support of two mutually exclusive events (i.e. Person X is included in this mixture versus Person X is not included in this mixture). The results are expressed as a number that indicates which scenario is more likely. The significance of the likelihood ratio can also be assessed using the following table:

Likelihood Ratio Value	**Verbal scale for evidence interpretation**
LR > 1,000,000	Very strong support for the inclusion hypothesis
10,000 < LR < 999,999	Strong support for the inclusion hypothesis
100 < LR < 9,999	Moderate support for the inclusion hypothesis
2 < LR < 99	Limited support for the inclusion hypothesis
0.01 < LR < 1.99	Results are uninformative for either inclusion or exclusion
LR ≤ 0.01	Person of Interest is excluded as a contributor to the mixture